

Notice of Allowability

Application No.

09/653,827

Examiner

Baoquoc N. To

Applicant(s)

RASMUSSEN, GLENN D.

Art Unit

2162

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 09/28/2006.
2. ☒ The allowed claim(s) is/are 9-34 and 36-42.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 12/29/06
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 09/28/2006.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.


JEAN M. CARMELUS
PRIMARY EXAMINER

DETAILED ACTION

1. Claims 9 and 36 are amended in the amendment filed on 07/18/2006. Claims 9-34 and 36-42 are pending in this application.

Drawings

2. Drawing filed 09/01/2006 is accepted by examiner.

EXAMINER'S AMENDMENT

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John Harris associated agent for Daniel J. Santos, Reg. 40,158 on 09/28/2006.

Please amend the application as below:

9. (Currently amended) A computer system comprising a metadata model transformer for transforming a metadata model that represents one or more data sources having physical data, the transformer comprising:

one or more data access model transformations for refining description of the physical data in the data source expressed by data access model objects in a metadata model having a data access layer containing the data access model objects having a lower degree of abstraction, a business layer containing business model objects having

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a higher degree of abstraction compared to the data access model objects, and a package layer containing package model objects;

one or more data access to business model transformations for constructing business model objects in the business layer based on the data access model objects in the data access layer by adding business rules for representing business concepts;

one or more business model transformations for refining the business rules expressed by the business model objects; and

one or more business to package model transformations for constructing package model objects in the package layer based on the business model objects in the business layer, whereby the package model objects provide a representation of the business concepts

wherein the metadata model is stored in a storage device.

10. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 9, wherein the data access model transformations refines the description by adding new data access model objects to data access model objects which are constructed via import from the data sources or one or more metadata sources.

11. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 9, wherein the business model transformations refine the business rules by changing the business model objects.

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12. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 11, wherein the business model objects include business model objects which are constructed via import from one or more metadata sources.

13. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 9 further comprising:

one or more package model transformations for constructing a new package model object based on the package model objects in the model.

14. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 13, wherein the package model objects include package model objects which are constructed via import from one or more metadata sources.

15. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 9 further comprising:

a name mutation transformation for changing names of objects in the model based on user defined rules.

16. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 9, wherein the data access model transformations include a transformation which creates a new data access model object based on the data access model objects contained in the data access layer.

17. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 16, wherein

the data sources contain tables having columns and indexes;

the data access model objects include data access tables, data access columns and data access indexes which respectively describe information about the tables, columns and indexes in the data sources; and

the data access model transformations include a data access join constructing transformation for constructing a data access join between data access tables based on the data access indexes.

18. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 16, wherein

the data sources contain tables having columns and indexes;

the data access model objects include data access tables, data access columns and data access indexes which respectively describe information about the tables, columns and indexes in the data sources; and

the data access model transformations include a data access key constructing transformation for creating a data access key for a data access table based on the data access indexes.

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19. (Currently amended) A computer system ~~metadata-model transformer~~ as claimed in claim 16, wherein

the data sources contain at least one of tables having columns and indexes, views having columns or files having columns or fields;

the data access model objects include at least one of data access tables, data access views, data access files, data access columns and data access indexes which respectively describe information about the tables, columns of the tables, indexes of the tables, the views, the columns of the views, the files, and the columns or fields of the files in the data sources; and

the data access model transformations include a table extract constructing transformation for constructing a table extract based on the data access tables, the data access views and the data access files.

20. (Currently amended) A computer system ~~metadata-model transformer~~ as claimed in claim 16, wherein

the data access model objects include one or more logical cube, each of which defines a multidimensional space represented in a number of physical storage formats; and

the data access model transformations include a data access cube constructing transformation for constructing data access cubes to instantiate the multidimensional space defined by each logical cube.

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21. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 9, wherein the data access to business model transformations include a basic business model constructing transformation which obtains information about a data access model object in the data access layer, and create a business model object corresponding to the data access model object.

22. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 21, wherein

the business model objects include entities that exist as an implementation artifact of a many to many relationship, and business joins associated with the entities; and

the business model transformations include a many to many join relationship fixing transformation for locating the entities, and replacing the associated business joins with a single business join.

23. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 21, wherein

the business model objects include entities that are related via a 1:1 join relationship; and

the business model transformations include an entity coalescing transformation for locating the entities that are related via a 1:1 join relationship, and coalescing the located entities into a single entity.

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24. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 21,

the business model objects include one or more redundant joins that express the transitivity of two or more other join relationships in the business layer; and

the business model transformations include a redundant join relationship eliminating transformation for locating the redundant joins, and eliminating the redundant joins from the business layer.

25. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 21, wherein

the business model transformations include a subclass relationship introducing transformation for introducing a new entity with a subclass relationship into the business layer.

26. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 21, wherein

the business model objects include an entity acting as a lookup table with respect to the other entity, and a business join between the entities, the business join is an associate type; and

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the business model transformations include an entity referencing transformation for locating the entity acting as a lookup table, and changing the business join which is an association type to a business join which is a reference type.

27. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 21, wherein

the business model transformations include an attribute usage determining transformation for determines the usage of an attribute based on how it is used by other business model objects.

28. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 21, wherein

the business model transformations include a date usage identifying transformation for examining attributes to determine where dates are used in the attributes.

29. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 9, wherein the business to package model transformations include a basic package model constructing transformation for constructing a package layer by forming a package with package model objects which corresponds to a subset of the business model objects.

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30. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 13, wherein the package model transformations include a special package construction transformation for constructing a specific package which is usable by a specific client application from a generic package.

31. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 9 further comprising one or more multidimensional model transformations for a multidimensional model.

32. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 31, wherein the multidimensional model transformations include a measure identifying and measure dimension constructing transformation for analyzing the structure of each data source to identify entities that contain measure candidates and identifying a reasonable set of measures.

33. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 31, wherein the multidimensional model transformations include a category dimension and level constructing transformation for analyzing each data source, and constructing dimensions and levels for the source model.

34. (Currently amended) A computer system ~~metadata model transformer~~ as claimed in claim 32, wherein the multidimensional model transformations include a logical cube

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constructing transformation for constructing a set of logical cubes based on the dimensions in a corresponding data source.

35. (Cancelled)

36. (Currently amended) A method for transforming in a computer system a metadata model that represent represents one or more data sources having physical data, the method comprising steps of:

refining description of physical data in the data sources expressed by data access objects in a metadata model having a data access layer containing the data access model objects having a lower degree of abstraction, a business layer containing business model objects having a higher degree of abstraction compared to the data access model objects, and a package layer containing package model objects;

constructing business model objects in the business layer based on the data access objects in the data access layer by adding business rules for representing business concepts;

refining the business rules expressed by the business model objects;

constructing package model objects in the package layer based on the business model objects in the business layer, whereby the package model objects provide a representation of the business concepts; and

storing the metadata model having the data access layer, the business layer and a package layer in a storage device.

37. (Original) A method as claimed in claim 36, wherein the step of refining the description comprises a step of adding new data access model objects to data access model objects which are constructed via import from the data sources or one or more metadata sources.

38. (Original) A method as claimed in claim 36, wherein the step of refining the business rules comprises a step of changing the business model objects.

39. (Original) A method as claimed in claim 36, wherein the step of refining the business rules uses the business model objects that include business model objects which are constructed via import from one or more metadata sources.

40. (Previously presented) A method as claimed in claim 36, further comprising a step of constructing a new package layer based on the business model objects in the model.

41. (Previously presented) A method as claimed in claim 40, wherein the step of constructing a new package layer uses the business model objects that include business model objects which are constructed via import from one or more metadata sources.

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42. (Original) A method as claimed in claim 36 further comprising a step of changing names of objects in the model based on user defined rules.

43- 44. (Cancelled)

Allowable Subject Matter

4. Claims 9-34 and 36-42 are allowed over the prior art made of records.

The following is an examiner's statement of reasons for allowance:.

As to claim 9, none of known prior art alone or in combination either teach or suggest "one or more data access model transformations for refining description of the physical data in the data source expressed by data access model objects in a metadata model having a data access layer containing the data access model objects having a lower degree of abstraction, a business layer containing business model objects having a higher degree of abstraction compared to the data access model objects, and a package layer containing package model objects; one or more data access to business model transformations for constructing business model objects in the business layer based on the data access model objects in the data access layer by adding business rules for representing business concepts; one or more business model transformations for refining the business rules expressed by the business model objects; and one or more business to package model transformations for constructing package model objects in the package layer based on the business model objects in the business layer, whereby the package model objects provide a representation of the business concepts, wherein the metadata model is stored in a storage device.

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Claims 10-34 are depended on claim 9, since claim 9 is allowed. Therefore, claims 10-34 are allowed under the same reason as to claim 9.

Claim 36 is method performing in the system of claim 9, since claim 9 is allowed. Therefore, claim 36 is allowed under the same reason 9.

Claims 37-42 are depended on claim 36, since claim 36 is allowed. Therefore, claim 37-42 are allowed under same reason as to claim 36.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Patent and publication:

Burst et al.	(US 2006/0085438 A1)	Pub. Date: 04/20/2006.
Subramanian et al.	(US 2005/0187930 A1)	Pub. Date: 08/25/2005.
Ahn et al.	(US 2004/0098398 A1)	Pub. Date: 05/20/2004.
Feinberg et al	(US 2003/0200222 A1)	Pub. Date: 10/23/2003.
Bradley	(Patent No. 6,871,245 B2)	Patent date: 03/22/2005.
Amouroux	(Patent No. 6,704,726 B1)	Patent date: 03/09/2004.
Cazemier et al.	(Patent No. 6,609,123 B1)	Patent date: 08/19/2003.

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Hornick et al. (Patent No. 6,865,573 B1) Patent date: 03/08/2005.

NPL:

Yoo et al. Automatic conversion of MPEG-7 Specification and data into RDF (S) for Semantic Interoperability in Information Retrieval, Computational Intelligence for Modelling, Control and Automation International conference, Vol. 1, Nov 28-30, 2005, pages 45-50.

Imai et al. RDF model and relational metadata, Advanced Information Networking and Application, 2003, March 27-29, 2003, pages 534-537.

Li et al. Representing UML snowflake diagram form integrating XML data using XML Schema, Data Engineering Issues in E-Commerce, 2005, April 9 2005, pages 103-111.

Cheung et al. The model-assisted Global query system for multiple databases in distributed enterprises, ACM Transactions on information System (TOIS), Vol. 14, Issue. 4, 1996, pages 421-470.

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Baoquoc N. To whose telephone number is at 571-272-4041, or unofficial fax number for the purpose of discussion (571) 273-4041 or via e-mail BaoquocN.To@uspto.gov. The examiner can normally be reached on Monday-Friday: 8:00 AM – 4:30 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached at 571-272-4107.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

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Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231.

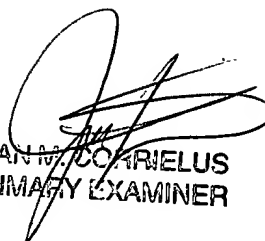
The fax numbers for the organization where this application or proceeding is assigned are as follow:

(571) -273-8300

[Official Communication]

BQ To

September 29th, 2006


JEAN M. CORRIELUS
PRIMARY EXAMINER